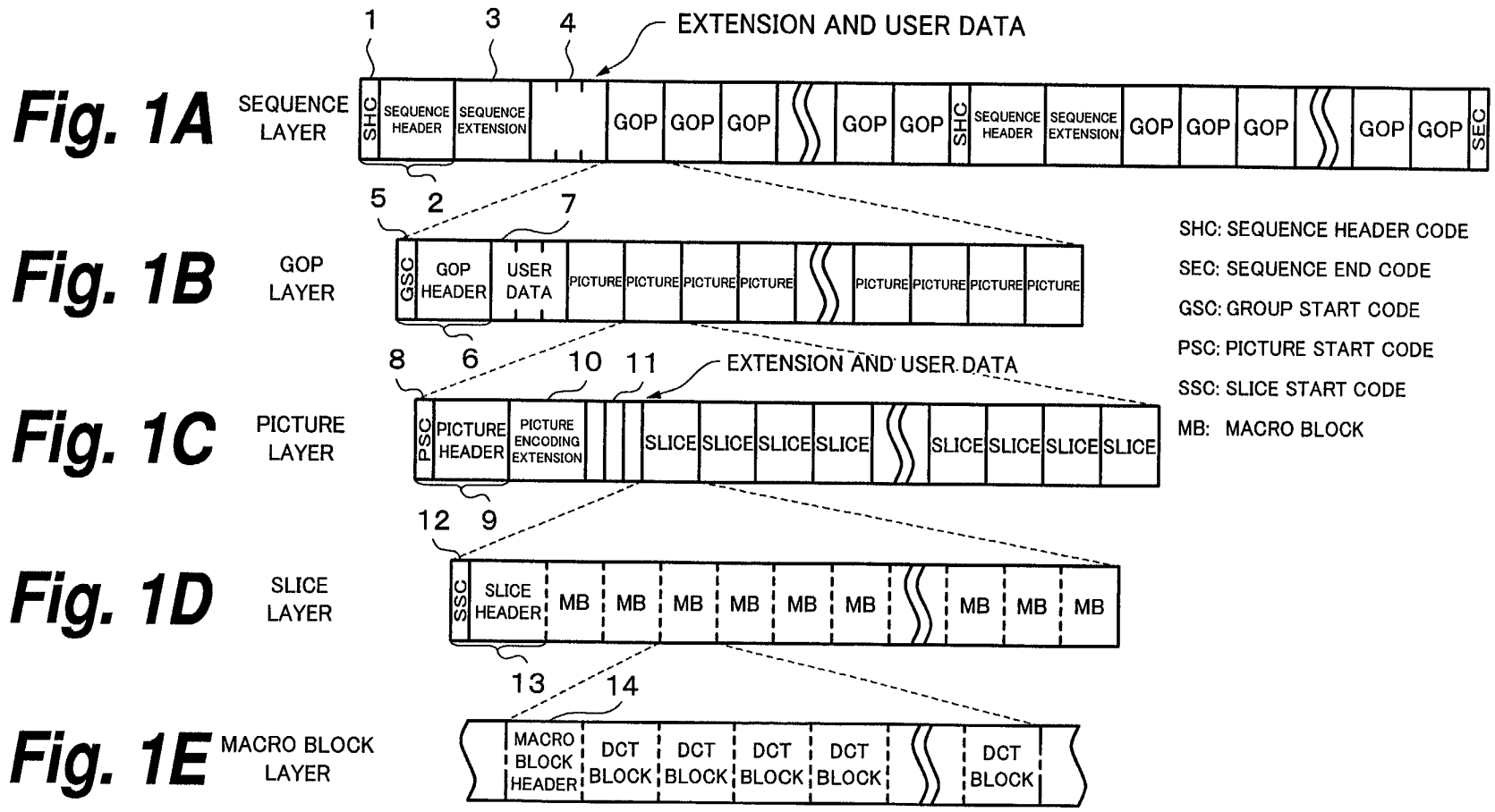
Fig. 1A
SEQUENCE LAYER
1
3
4
EXTENSION AND USER DATA
SHC
SEQUENCE HEADER
SEQUENCE EXTENSION
GOP
SEC
Fig. 1B
GOP LAYER
5
2
7
GSC
GOP HEADER
USER DATA
PICTURE
Fig. 1C
PICTURE LAYER
8
6
10
11
EXTENSION AND USER DATA
PSC
PICTURE HEADER
PICTURE ENCODING EXTENSION
SLICE
Fig. 1D
SLICE LAYER
12
9
SSC
SLICE HEADER
MB
Fig. 1E
MACRO BLOCK LAYER
13
14
MACRO BLOCK HEADER
DCT BLOCK
SHC: SEQUENCE HEADER CODE
SEC: SEQUENCE END CODE
GSC: GROUP START CODE
PSC: PICTURE START CODE
SSC: SLICE START CODE
MB: MACRO BLOCK

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Fig. 2

CODE NAME	NUMBER OF BITS	CONTENT
sequence header code	32	SEQUENCE HEADER CODE
horizontal size value	12	LOW ORDER 12 BITS OF NUMBER OF PIXELS IN HORIZONTAL DIRECTION
vertical size value	12	LOW ORDER 12 BITS OF NUMBER OF PIXELS IN VERTICAL DIRECTION
aspect ratio information	4	PIXEL ASPECT RATIO INFORMATION
frame rate code	4	FRAME RATE CODE
bit rate value	18	LOW ORDER 18 BITS OF BIT RATE (INDICATION AS BLOCKS OF 400 BITS)
vbv buffer size value	10	LOW ORDER 10 BITS OF VBV BUFFER SIZE
intra quantiser matrix [64]	8 * 64	INTRA MB QUANTIZING MATRIX VALUE
non intra quantiser matrix [64]	8 * 64	NON-INTRA MB QUANTIZING MATRIX VALUE

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Fig. 3

CODE NAME	NUMBER OF BITS	CONTENT
profile and level indication	8	PROFILE, LEVEL
progressive sequence	1	OVERALL SEQUENCE PROGRESSIVE PICTURE FLAG
chroma format	2	COLOR DIFFERENCE FORMAT
low delay	1	LOW DELAY MODE (WITHOUT B PICTURE)

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Fig. 4

CODE NAME	NUMBER OF BITS	CONTENT
extension data (0)		EXTENSION DATA (0)
sequence display extension ( )		SEQUENCE INDICATION ( )
sequence scalable extension ( )		SEQUENCE SCALABLE EXTENSION ( )
extension start code identifier	4	SEQUENCE SCALABLE EXTENSION ID
scalable mode	2	SCALABILITY MODE
layer id	4	LAYER ID OF SCALABLE HIERARCHY
SPATIAL SCALABILITY		
lower layer prediction horizontal size	14	HORIZONTAL SIZE OF PREDICTIVE LOWER LAYER
lower layer prediction vertical size	14	VERTICAL SIZE OF PREDICTIVE LOWER LAYER
vertical subsampling factor n	5	DIVISOR FOR UP SAMPLE IN VERTICAL DIRECTION
TEMPORAL SCALABILITY		
picture mux order	3	NUMBER OF PICTURES OF ADDITIONAL LAYER FOLLOWED BY FIRST BASE LAYER
picture mux factor	3	NUMBER OF PICTURES OF ADDITIONAL LAYER BETWEEN BASE LAYERS
user data ( )		USER DATA ( )
user data	8	USER DATA

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Fig. 5

CODE NAME	NUMBER OF BITS	CONTENT
group start code ( )	32	GOP START CODE
time code	25	TIME CODE (HOUR, MINUTE, SECOND, PICTURE)
closed gop	1	FLAG REPRESENTING INDEPENDENSY OF GOP
broken link	1	FLAG REPRESENTING VALIDITY OF B PICTURE FOLLOWED BY I PICTURE OF GOP

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Fig. 6

CODE NAME	NUMBER OF BITS	CONTENT
extension data (1)		EXTENSION DATA (1)
user data ( )		USER DATA ( )
user data	8	USER DATA

Fig. 7

CODE NAME	NUMBER OF BITS	CONTENT
picture start code	32	PICTURE START CODE
temporal reference	10	DISPLAY SEQUENCE OF PICTURES IN GOP (MODULO 1024)
picture coding type	3	PICTURE ENCODING TYPE (I, B, P)
vbv delay	16	VBV DELAY AMOUNT UNTILL START OF DECODING

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Fig. 8

CODE NAME	NUMBER OF BITS	CONTENT
f code [s][t]	4	RANGE OF MOVING VECTOR IN FORWARD/BACKWARD DIRECTIONS (s) AND HORIZONTAL/VERTICAL DIRECTIONS (t)
intra dc precision	2	ACCURACY OF DC COEFFICIENTS OF INTRA MB
picture structure	2	PICTURE STRUCTURE (FRAME, FIELD)
top field first	1	DESIGNATING DISPLAY FIELD
frame pred frame dct	1	FRAME PREDICTION + FRAME DCT FLAG
concealment motion vectors	1	INTRA MB CONCEALMENT MV FLAG
q scale type	1	QUANTIZING SCALE TYPE (LINEAR, NON-LINEAR)
intra vlc format	1	VLC TYPE FOR INTRA MB
alternate scan	1	SCANNING TYPE (ZIGZAG, ALTERNATE)
repeat first field	1	2 : 3 PULL-DOWN FIELD REPEAT
chroma 420 type	1	SAME VALUE AS PROGESSIVE FRAME IN CHROMA FORMAT 4 : 2 : 0
progressive frame	1	PROGRESSIVE FRAME FLAG

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Fig. 9

CODE NAME	NUMBER OF BITS	CONTENT
extension data (2)		EXTENSION DATA (2)
quant matrix extension ( )		QUANTIZING MATRIX EXTENSION ( )
intra quantiser matrix [64]	8 * 64	INTRA MB QUANTIZING MATRIX
non intra quantiser matrix [64]	8 * 64	NON-INTRA MB QUANTIZING MATRIX
chroma intra quantiser matrix [64]	8 * 64	CHROMA INTRA QUANTIZING MATRIX
chroma non intra quantiser matrix [64]	8 * 64	CHROMA NON-INTRA QUANTIZING MATRIX
copyright extension ( )		COPYRIGHT EXTENSION ( )
picture display extension ( )		PICTURE DISPLAY EXTENSION ( )
picture spatial scalable extension ( )		PICTURE SPACE SCALABLE EXTENSION ( )
spatial temporal weight code table index	2	SPATIAL AND TEMPORAL WEIGHTING TABLE FOR UP SAMPLE
lower layer progressive frame	1	LOWER LAYER PROGRESSIVE PICTURE FLAG
lower layer deinterlaced field select	1	LOWER LAYER FIELD SELECTION
picture temporal scalable extension ( )		PICTURE TEMPORAL SCALABLE EXTENSION ( )
reference select code	2	SELECTION OF REFERENCE SCREEN
forward temporal reference	10	PICTURE NUMBER OF FORWARD PREDICTIVE LOWER LAYER
backward temporal reference	10	PICTURE NUMBER OF BACKWARD PREDICTIVE LOWER LAYER
user data ( )		USER DATA ( )
user data ( )	8	USER DATA

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Fig. 10

CODE NAME	NUMBER OF BITS	CONTENT
slice start code	32	SLICE START CODE + SLICE VERTICAL POSITION
slice vertical position extension	3	SLICE VERTICAL POSITION EXTENSION (> 2800 LINES)
priority breakpoint	7	DATA PARTITIONING BREAKPOINT
quantiser scale code	5	QUANTIZING SCALE CODE (1 TO 31)
intra slice	1	INTRA SLICE FLAG
macroblock ( )		MACRO BLOCK DATA ( )

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Fig. 11

CODE NAME	NUMBER OF BITS	CONTENT
macroblock escape	11	MB ADDRESS EXTENSION (> 33)
macroblock address increment	1-11	DIFFERENCE BETWEEN CURRENT MB ADDRESS AND PRECEDING MB ADDRESS
macroblock modes ( )		MACRO BLOCK MODE ( )
macroblock type	1-9	MB ENCODING TYPE (MC, CODED, etc)
spatial temporal weight code	2	TEMPORAL/SPATIAL WEIGHTING CODE FOR UP SAMPLE
frame motion type	2	MOTION COMPENSATION TYPE OF FRAME STRUCTURE
field motion type	2	MOTION COMPENSATION TYPE OF FIELD STRUCTURE
dct type	1	DCT TYPE (FRAME, FIELD)
quantiser scale code	5	MB QUANTIZING SCALE CODE (1 TO 31)
motion vectors (s)		MOVING VECTOR (s)
motion vertical field select [r][s]	1	SELECTION OF REFERENCE FIELD USED FOR PREDICTION
motion vector (r, s)		MOVING VECTOR (r, s)
motion code [r][s][t]	1-11	BASIC DIFFERENCE MOVING VECTOR
motion residual [r][s][t]	1-8	DIFFERENCE VECTOR
dmvector [t]	1-2	DIFFERENCE VECTOR FOR DUAL PRIME
coded block pattern ( )		CBP
block (i)		BLOCK DATA ( )

Fig. 12

CODE NAME	NUMBER OF BITS	CONTENT
dct dc size luminance	2–9	DCT LUMINANCE DC COEFFICIENT DIFFERENCE SIZE
dct dc differential	1–11	DCT LUMINANCE DC COEFFICIENT DIFFERENCE VALUE
dct dc size chrominance	2–10	DCT CHROMINANCE DC COEFFICIENT DIFFERENCE SIZE
dct dc differential	1–11	DCT CHROMINANCE DC COEFFICIENT DIFFERENCE VALUE
First DCT coefficient	3–24	FIRST NON-ZERO COEFFICIENT OF NON-INTRA BLOCK
Subsequent DCT coefficient	2–24	DCT COEFFICIENT THAT FOLLOWS
End of block	2 or 4	DCT COEFFICIENT END FLAG IN BLOCK

Fig. 13A

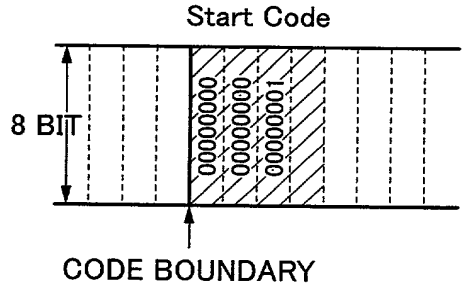

Fig. 13B

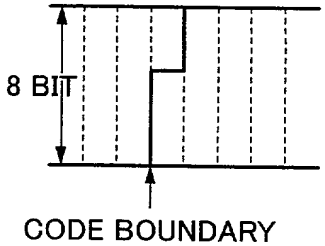

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Fig. 14

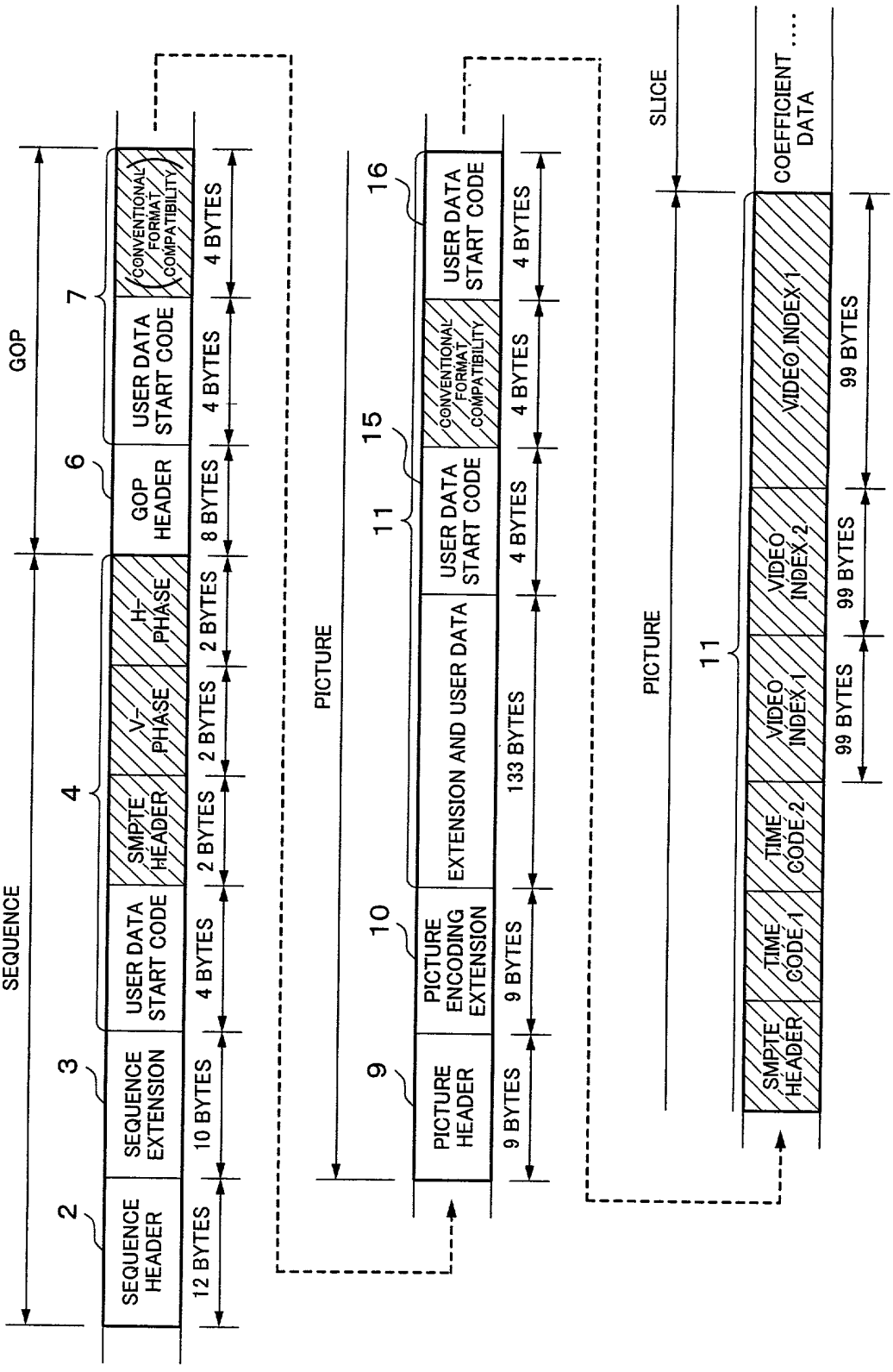

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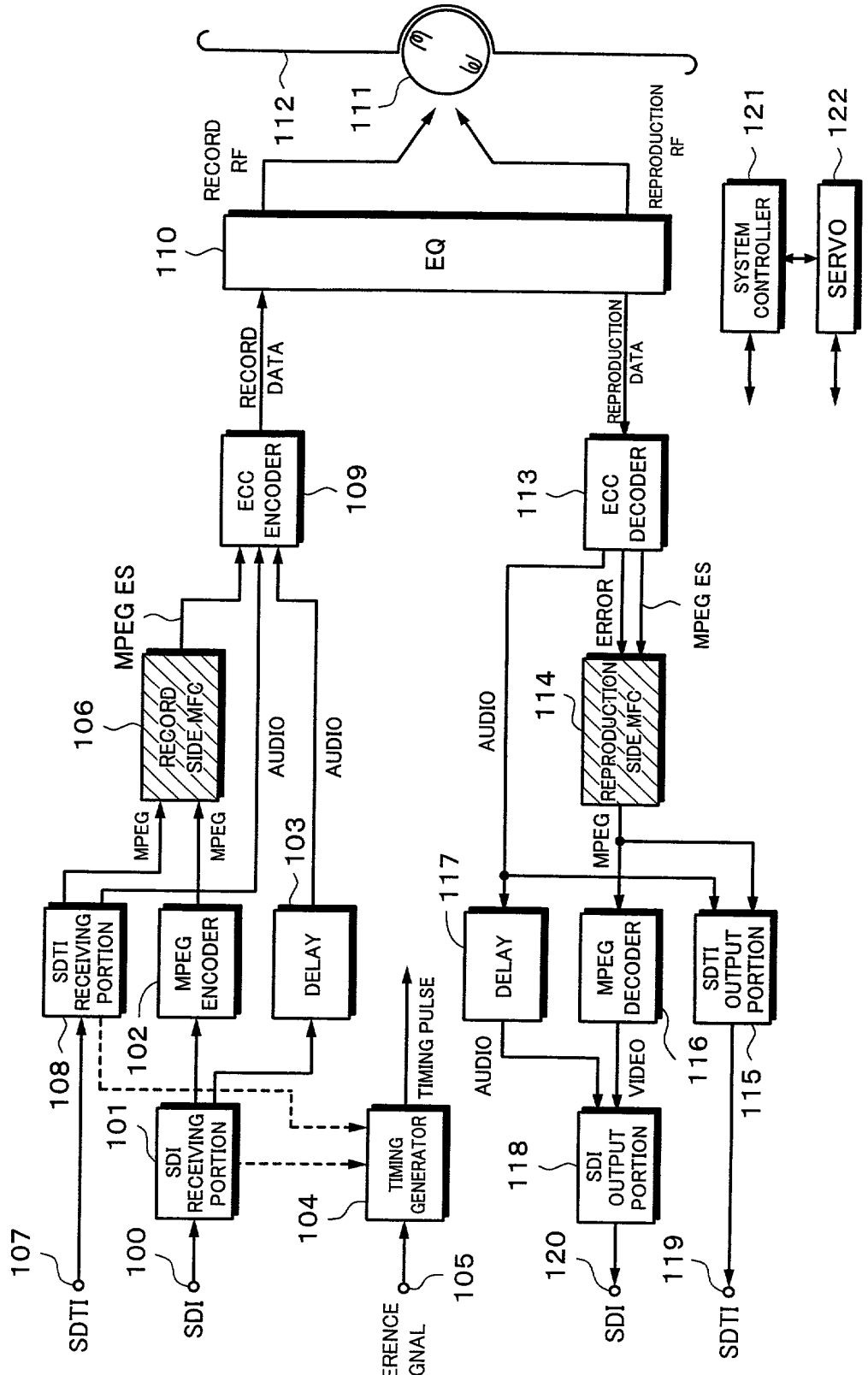
Fig. 15



EDITED: 05/04/2001

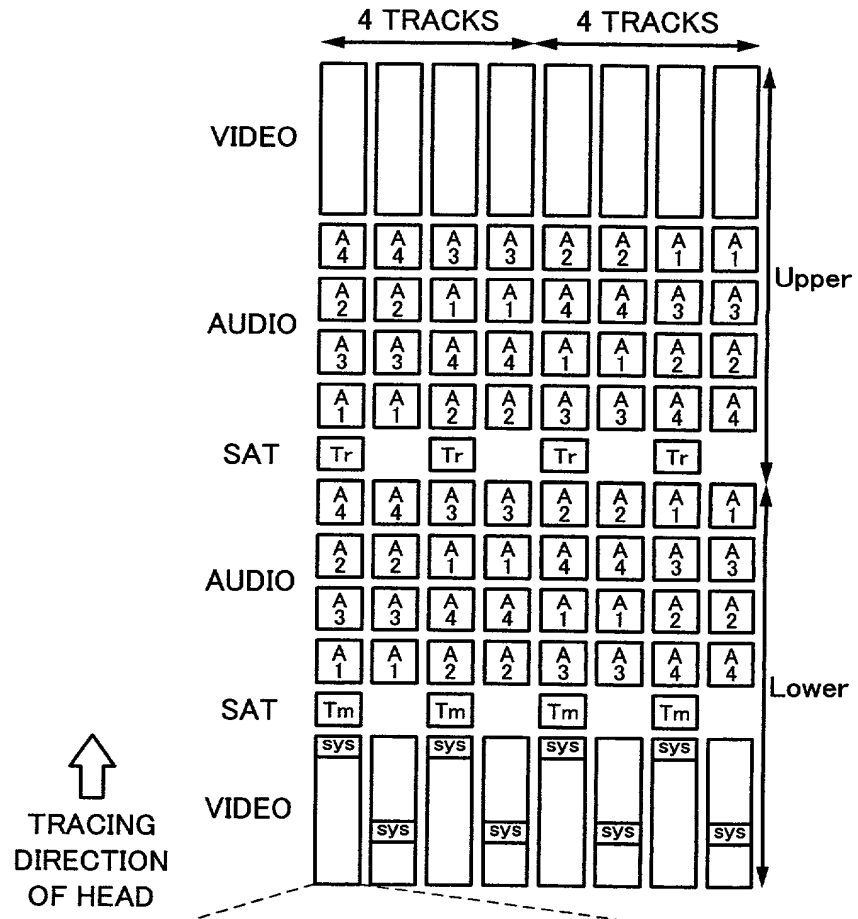


Fig. 16A

Fig. 16B

Fig. 16C

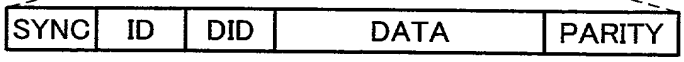


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Fig. 17A

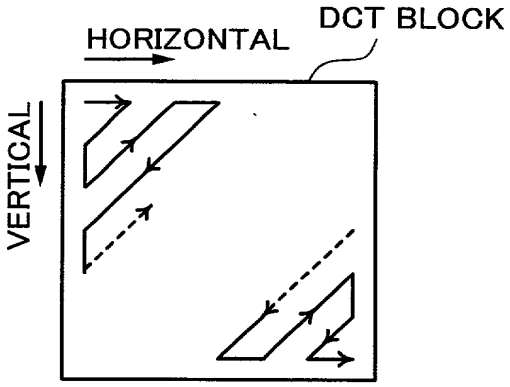

Fig. 17B

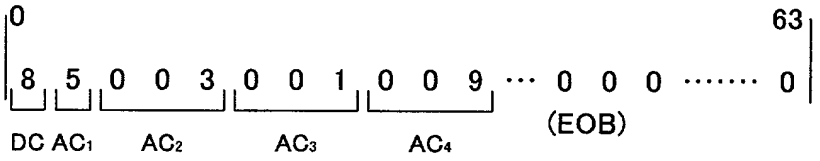

Fig. 18A

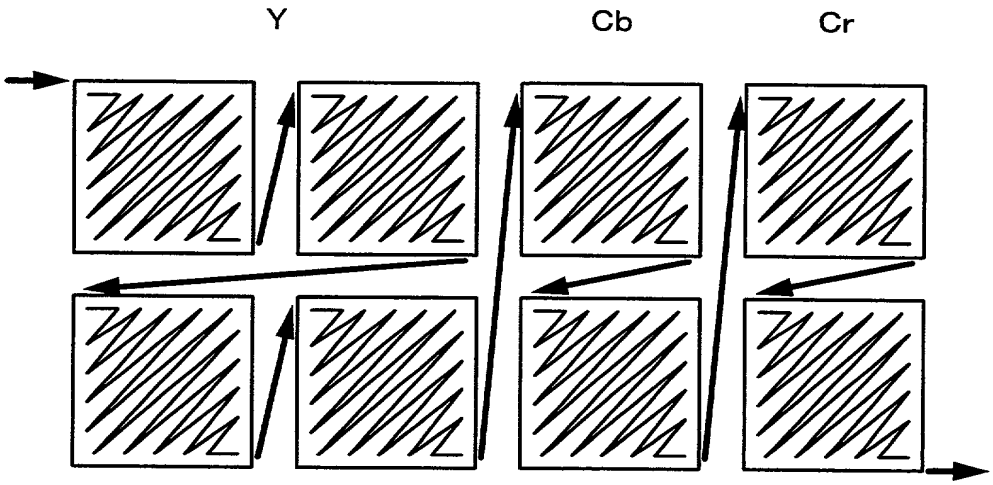

Fig. 18B

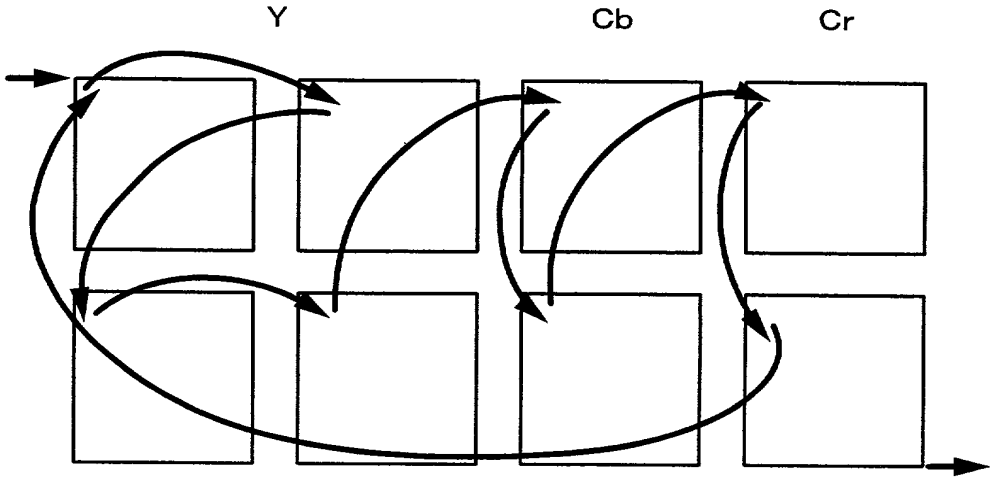

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Fig. 19A

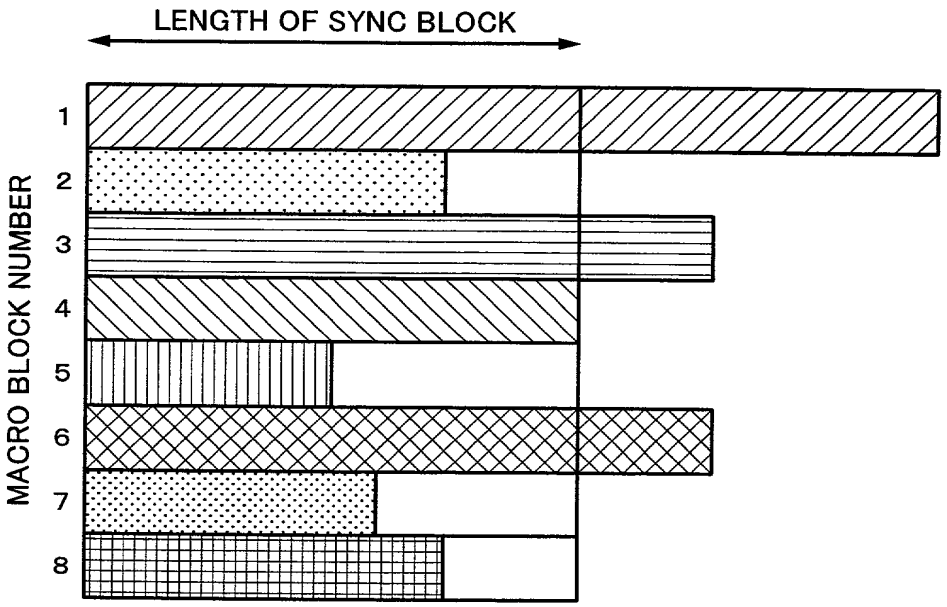

Fig. 19B

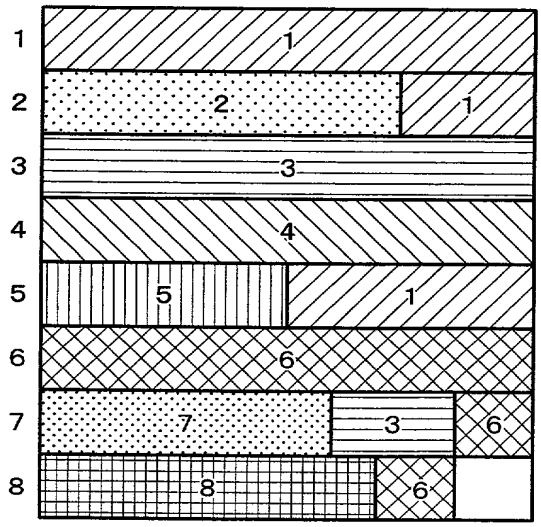

Fig. 20A

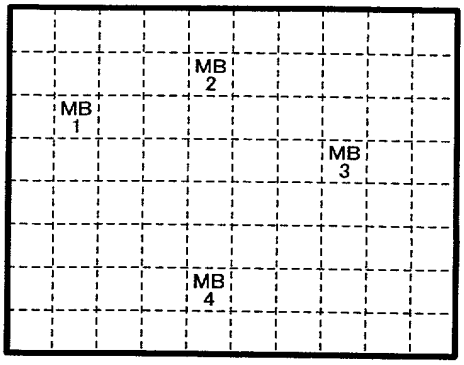

Fig. 20B

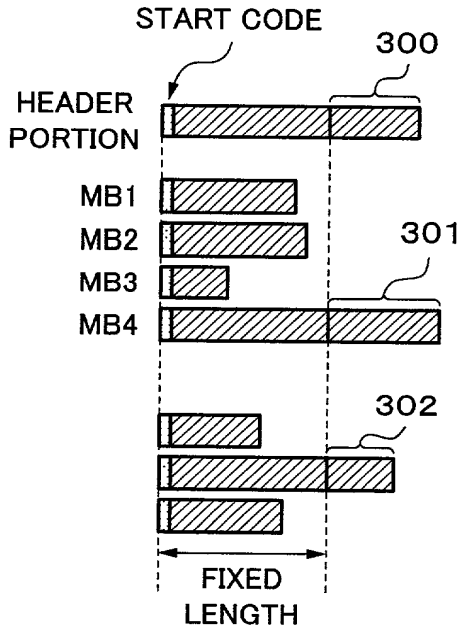

Fig. 20C

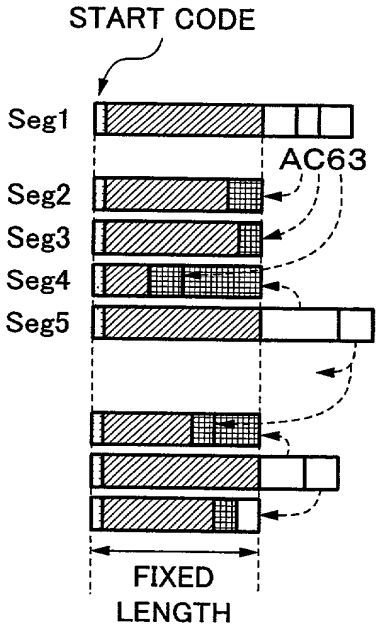

Fig. 20D

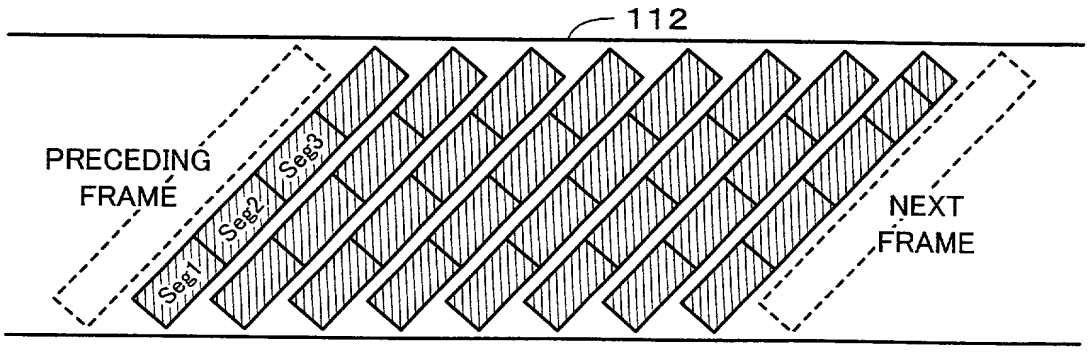

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Fig. 21

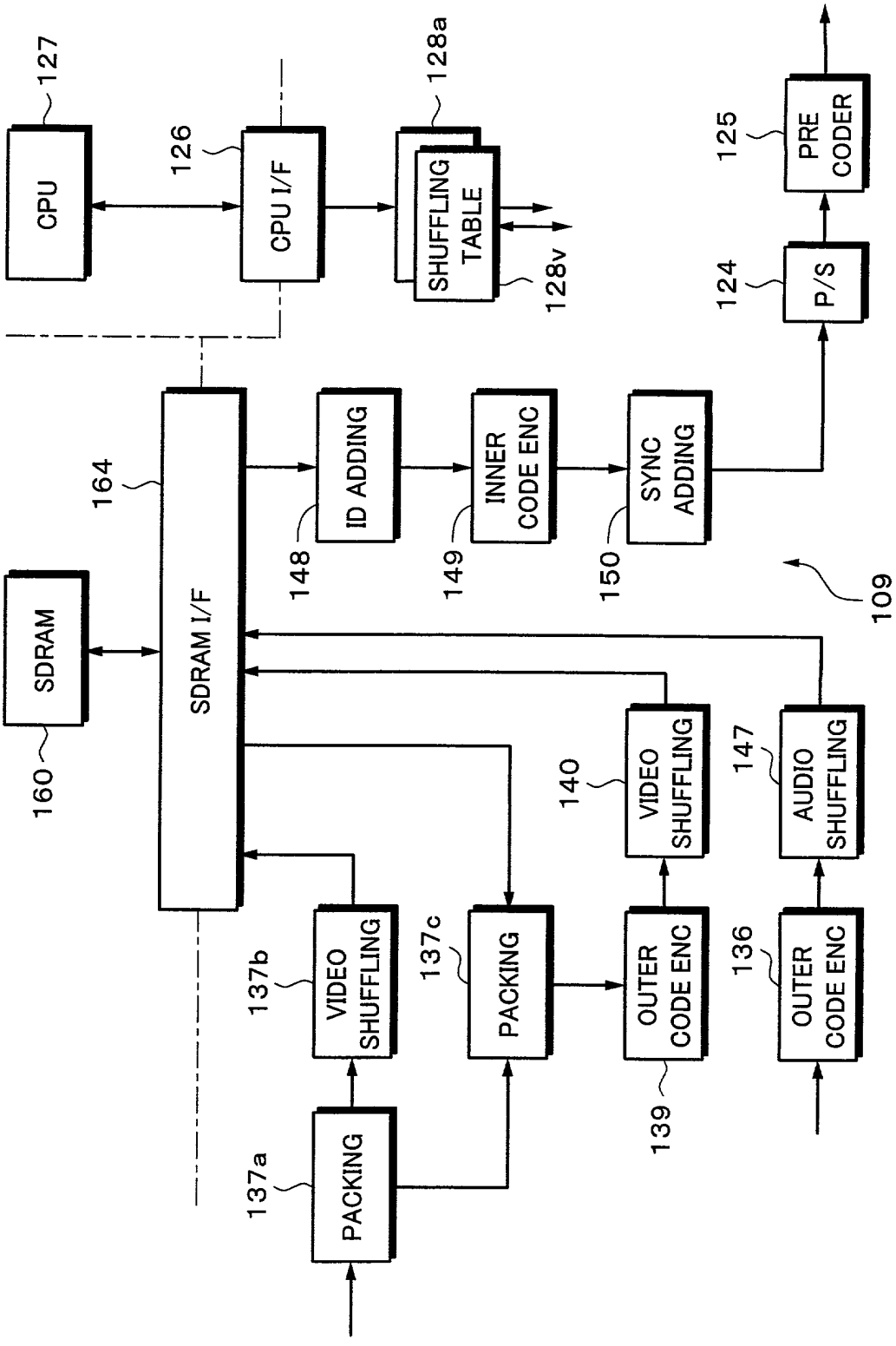
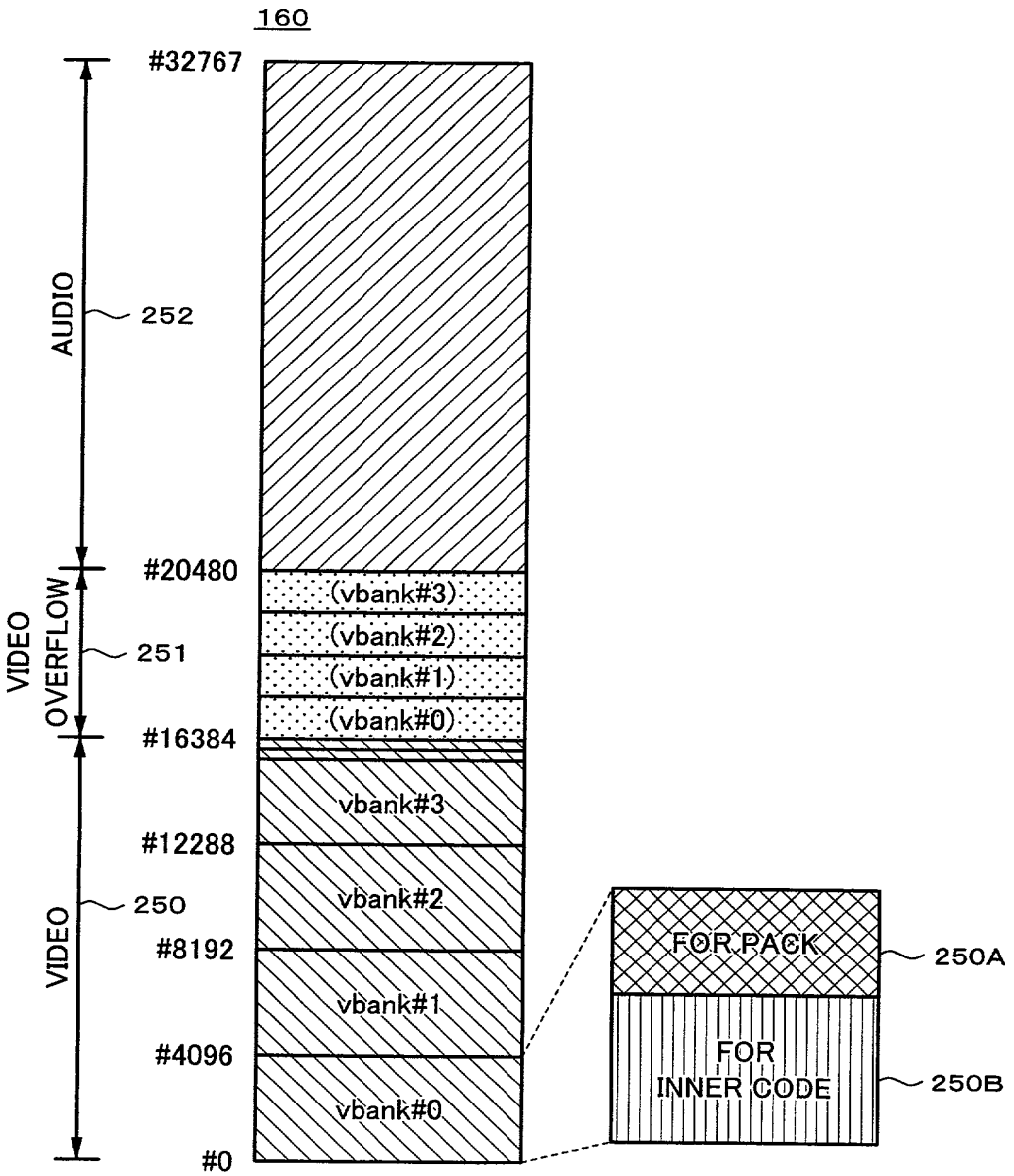


Fig. 22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AUDIO
252
#20480
VIDEO OVERFLOW
251
#16384
VIDEO
250
#12288
#8192
#4096
#0
(vbank#3)
(vbank#2)
(vbank#1)
(vbank#0)
vbank#3
vbank#2
vbank#1
vbank#0
FOR PACK
250A
FOR INNER CODE
250B

Fig. 23

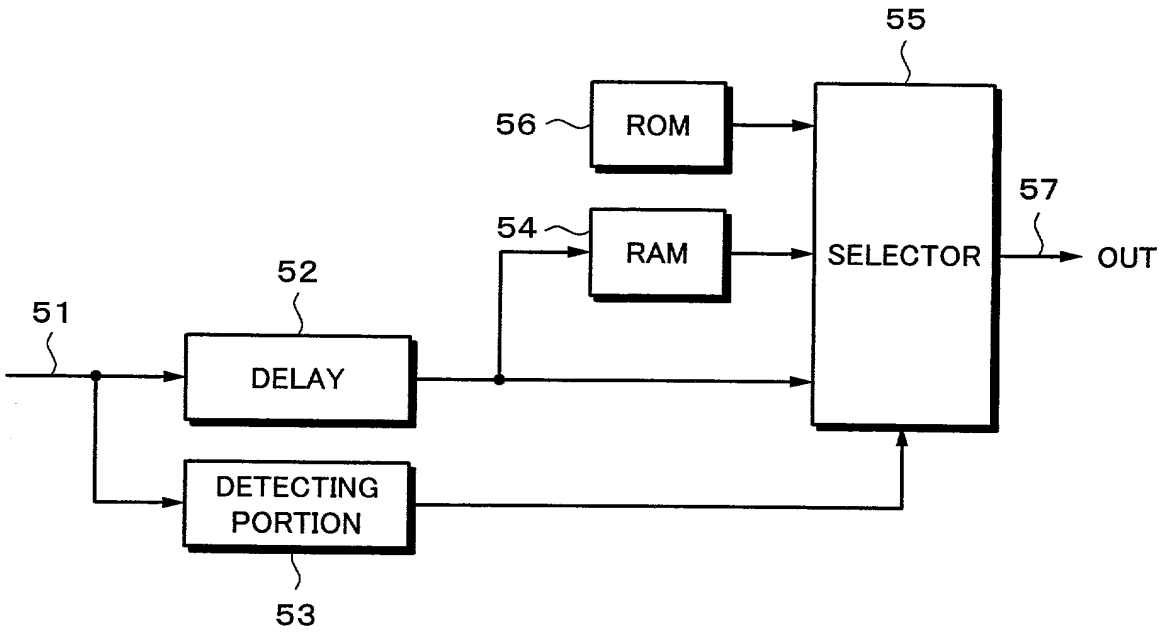
55
56
ROM
57
54
RAM
SELECTOR
OUT
52
51
DELAY
DETECTING
PORTION
53

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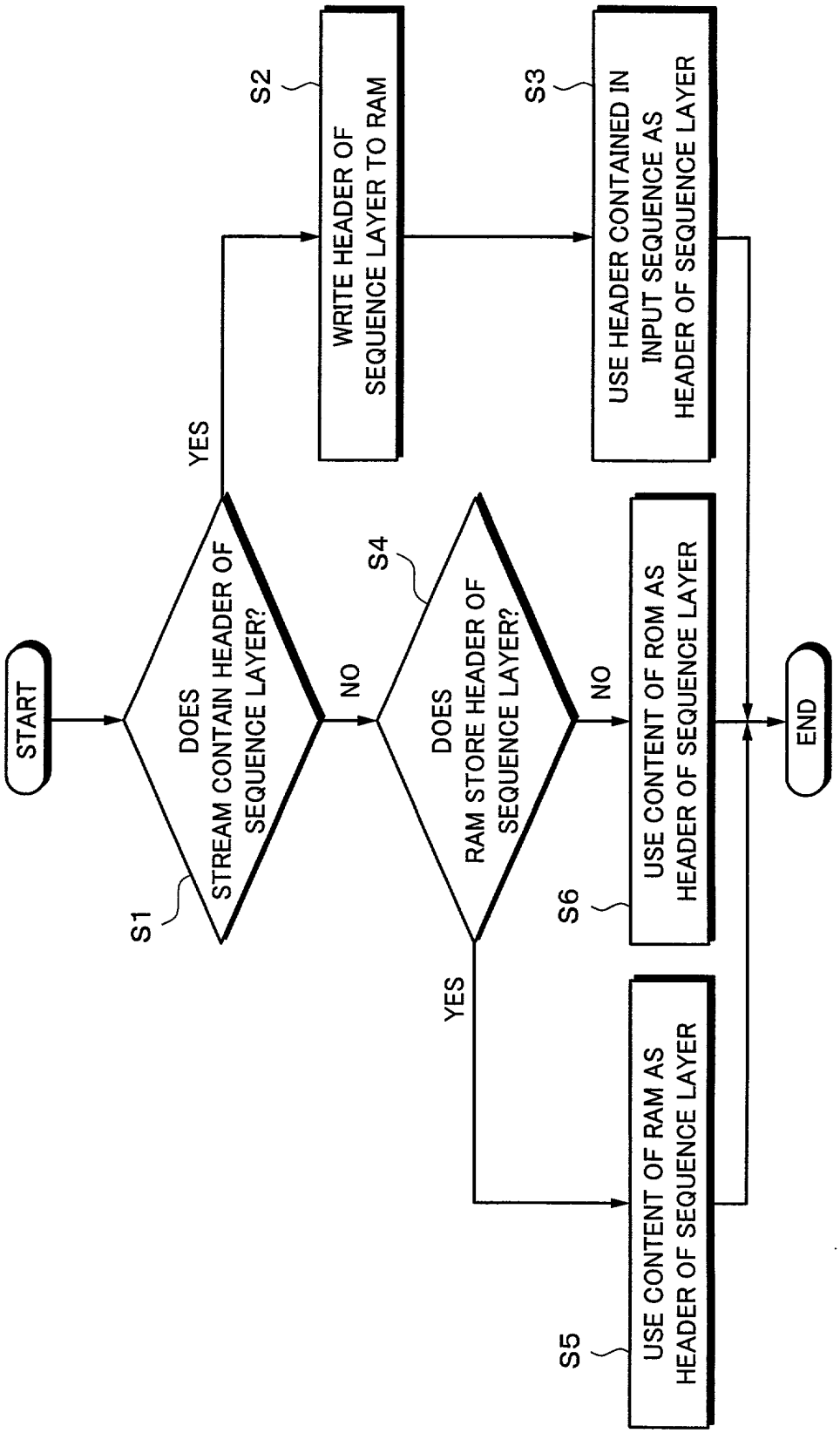
Fig. 24



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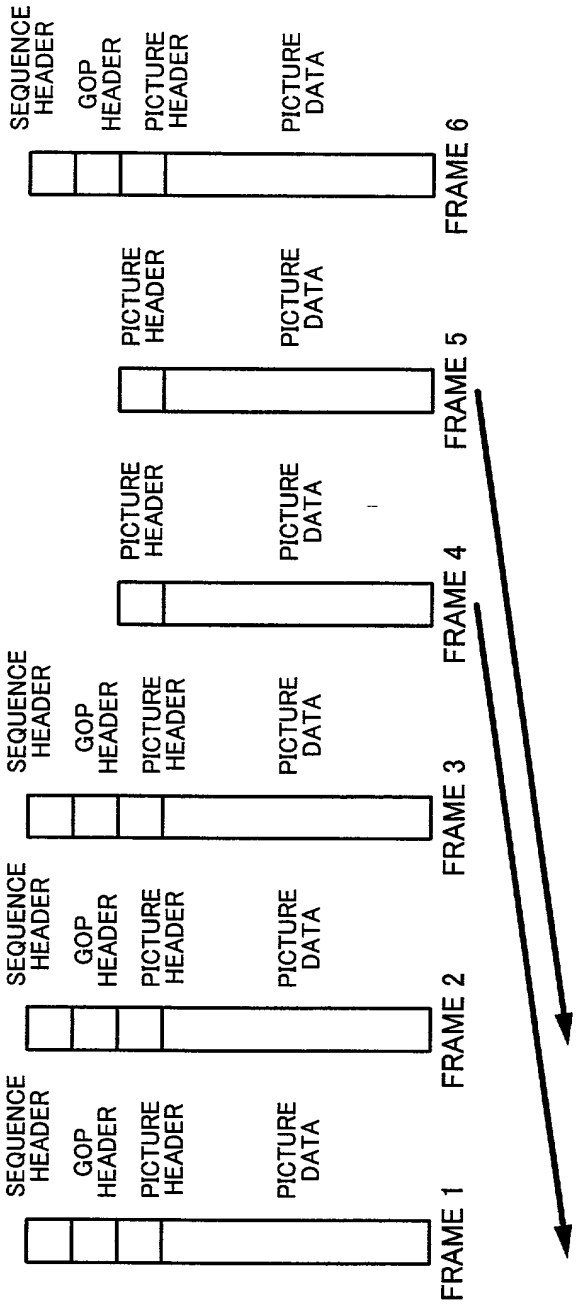

Fig. 25A

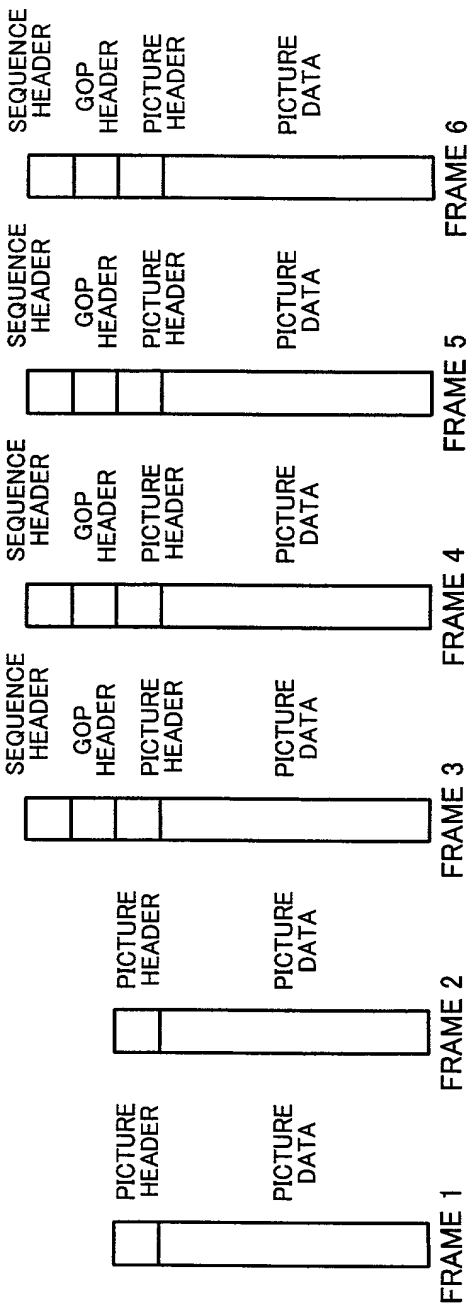

Fig. 25B